GrummanWorld

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Grumman Gets OK To Design Changes For X-29

Grumman has received a $4.6 million contract from the Air Force's Flight Dynamics Lab to design modifications for an X-29 high angle of attack flight program.

This flight program is scheduled for 1988. Angle of attack is the attitude of the aircraft relative to the direction of flight. Pilots call high angle of attack flight "high alpha" for short.

Grumman previously invested $1.5 million of its own funds for preliminary design on this program. The initial design contract is for work to be performed through the end of September. As a result, the X-29 program will expand its Bethpage staff by about 80 people between now and then.

A subsequent contract will encompass actual modifications and ground and flight testing of an X-29 airplane. The modifications will include installing a spin-recovery chute and instrumentation suite.

Until now, government funding for this technology demonstrator aircraft has come primarily from the Defense Advanced Research Projects Agency (DARPA). Though the Air Force was previously involved in the management of the program, this is the first significant funding Grumman has received directly from the service.

"That's progress," says Bill Mebes, X-29 program director. "DARPA, the arm of the DoD that investigates esoteric or high-risk new technologies, has shifted the follow-on program to the Air Force to continue flight research. It's evidence that the Air Force is interested in understanding the X-29 technologies and their applicability to tomorrow's defense needs."

X-29 no. 1 has been flying at NASA's Ames-Dryden Flight Research Facility, Edwards Air Force Base, California, for over two years now. It recently wrapped up its initial design envelope expansion program, completing 104 flights and achieving many of the flight test objectives.

At high angles of attack, a modified X-29 is expected to demonstrate unparalleled agility in the sky, proving out its inherent performance characteristics. "So far, the X-29 has been safely flown to 21 degrees angle of attack," says Mebes. "Its design limit is approximately 40 degrees, but we plan to pitch the airplane to 70 degrees or more.

"If you could maneuver an aircraft at such high angles of attack, that should give you an advantage over an adversary in one-on-one aerial combat," says Mebes. "Today's aircraft can't do it — they lose lateral control. We predict the X-29 will offer some important control improvements in this area."

The chute is being added for pilot safety: in the unlikely event of the aircraft going into a spin, the pilot can deploy the chute and correct the situation. Besides installing the chute and associated hardware, the X-29 team will modify the flight control system. The flight control system modifications are not included in the Air Force job, but will be funded through NASA.

"The flight control system has to adjust the plane's surfaces 40 times per second for the plane to stay in the air," says Mebes. "At high angle of attack, there are additional considerations. We have to create new flight control software so the on-board computers know how to maintain control at the high angles."

First flight of the high angle of attack airplane is tentatively scheduled for November of 1988.■

Home On The Range. *The X-29 has been flying at NASA's Ames-Dryden Research Facility in California for over two years and recently wrapped up its initial design envelope expansion program. It flew 104 times and achieved many of the flight test objectives. Recently, Grumman received a contract to design modifications for an X-29 high-angle of attack, or high alpha, flight program. It will begin in 1988.*

New E-2C Engines Begin Additional Navy Testing

The Navy is taking the new engines slated for the E-2C Hawkeye for one more set of test laps to make sure everything is perfect for production.

Two new Allison turboprop engines built to production specifications were installed in Grumman's Hawkeye development aircraft, E-2C number 34, and will be flown by the Navy this month.

These final flight tests will prove all modifications requested by the service after last year's successful series of flight tests of the prototype engines. However, Grumman has already been given the go-ahead to begin installing the new engines in production planes.

The Hawkeye needs more powerful engines because the service has been fine-tuning the plane's radar vision and target-detecting brain-power over the years. Those efforts have raised the weight of the aircraft more than 6,000 pounds over that of the first E-2C's, built in 1973.

The new engines will improve the rate of climb and staying power of current Hawkeyes. The first production Hawkeye equipped with the new Allisons is scheduled for delivery in February of next year.

Grumman, Chicago RTA Settle Lawsuits Out-Of-Court

On June 5, Grumman and the Chicago Regional Transportation Authority announced that they reached an out-of-court agreement on two lawsuits stemming from the sale of Grumman-manufactured Flxible Model 870 buses to RTA in 1979.

RTA has agreed to withdraw its lawsuit for costs incurred in removing 205 Model 870 buses from service in December 1980. RTA originally filed a lawsuit in the Circuit Court of Cook County in November 1981. The current litigation was filed in the U.S. District Court for the Northern District of Illinois in June 1983.

In July 1983, Grumman countersued in the same federal court for monies held by RTA for damages, and for delays and disruption to its bus production schedule in 1979. Grumman has agreed to withdraw its lawsuit. The cost to Grumman is $1.6 million.

"We made extraordinary efforts to meet our obligations by instituting a nationwide remanufacturing program in 1981 to repair the undercarriages of some 2,900 Model 870 buses," said Robert Landon, president of Grumman Ohio Corporation. "However, RTA suffered inconvenience and costs due to removal of the Model 870 buses from service in 1980. This settlement recognizes our intention of minimizing that inconvenience to RTA and its riding public.

"Grumman now has no further connection or obligations with the bus business in Chicago," said Landon. "This clears the way for the new Flxible Corporation to conduct its business without impediment with Chicago area transit authorities."

Grumman sold its bus company in August 1983 to General Automotive Corporation, a privately owned corporation headquartered in Ann Arbor, Michigan. This bus company is now operated as the Flxible Corporation.■

Grummanites Invited To Tap M.I.T. Resources

Grumman keeps close ties with the scholastic world in many different ways, including membership in the Massachusetts Institute of Technology's Industrial Liaison Program (ILP). Grumman has been a member since 1955.

"In part, Grumman's competitive future lies in the strength and diversity of its technical base," says Dick Opsahl, director of Technical Liaison, who is in charge of university affiliations. "Through the Industrial Liaison Program, we can use our resources to greater advantage."

The program provides Grummanites with convenient access to the resources of M.I.T.

Grumman's Industrial Liaison officer at M.I.T. is Howard Engelson, a retired Grummanite. He periodically visits Grumman, and can assist Grummanites in arranging for benefits from the program.

These services include attendance at private symposia and other meetings organized for members of the ILP; access to the *M.I.T. Report*, the ILP's monthly magazine, and *Research at M.I.T.*, an annually updated catalog of the research projects taking place at M.I.T. Grumman personnel also have access to research papers, theses, departmental publications, summer courses, M.I.T. libraries, the M.I.T. Press, departmental seminars and meetings, and the Computerized Literature Search Service.

In addition, Grummanites can tap M.I.T.'s most precious resources: its brain trust. Engelson can arrange for consultations with M.I.T. faculty and recruitment of M.I.T. graduates.

For further information, contact Dick Opsahl at Ext. (111) 56606 in Plant 35; or Howard Engelson at (617) 253-0410.■

Pop! *What an entrance this F-14 made for the folks watching fly-bys aboard the carrier* Kitty Hawk. *The photo was taken during a dependents' day cruise on the West Coast. (Photo courtesy of Joy Samuelson)*

Up In Smoke. *Three volunteer fire departments on Long Island fought the Building 31 fire early Saturday morning on June 6. Most of the company's engineering standards and specs were destroyed.*

Fire Destroys Volumes Of Records In Building 31

Scores of engineering standards, specifications and data are in ashes. At 1 a.m. on Saturday, June 6, an electrical fire broke out in the Building 31 trailers. Half the H-shaped building was gutted and the remaining offices suffered smoke and water damage. Most of the 110 building occupants were contacted over the weekend and told to report to work in Building 25 on Monday morning.

Small groups were escorted to the trailers and people were allowed to salvage their personal belongings or files. There was not much left for the Grummanites who worked on the north side of the building.

"When I got to the trailers on Saturday morning, I cried. Over 40 years of records went up in smoke," says Bob Glowacki, group head of Engineering Standards. His office was next to the computer room where the fire started.

Glowacki's group wasn't the only one left homeless. People from Technology Development and Design Support management and staff were also affected.

Part of Design Support, Engineering Standards is the central control and source of standards information on parts, materials, processes, finishes and practices used on Grumman products. Vehicle and Integrated Logistics Support Engineering, Material Management, Procurement Services and Manufacturing rely on Standards' support. Over 25,000 Grumman Standard drawings were destroyed, along with priceless specifications and data for older Grumman aircraft.

Hard copies of federal, military and industry specifications and standards were put on rush order; they should be in-house in six to eight weeks. Luckily, existing rented and Grumman-created microfilm files provide some backup. The Materiel Data File stored on the mainframe at Grumman Data Systems was updated Friday.

About five years ago, an outside rental firm began microfilming older specs and drawings. Grumman has contacted that firm and will rent whatever is on microfilm. "They don't have a complete set, though," adds Glowacki. "We'll never get it all back."

This will pose a problem for owners of old Grumman aircraft. "For instance, someone calls about a part for a Tracker and he wants revision A," says Glowacki. "Well, the latest drawings are revision H. We used to be able to give him the exact revision. It will be difficult."

Fellow members of Design Support in Engineering Specifications lost most of their manuals. "They were either burnt to a crisp or soggy," says John Culleton, director of Design Support. "We are drying out the word processor disks — but it doesn't look promising."

Most of the material stored in metal cabinets and desks in his area of the building was salvageable. The workstations with cloth partitions did not fare so well. Most people found charred calculators on Monday morning.

The people in Technology Development have their own set of problems. They supply the Grumman technical world with software development tools, along with other computer-aided design tools. While their computers weren't burnt, they are contaminated by smoke and firefighting material. Grumman Data Systems is trying to clean up the damaged computers.

With help from Facilities, Bernie Rachowitz, director of Technology Development, had managed to remove the high-priced computer systems from the building by Saturday afternoon. "We're still assessing the damage, from software to the data stored on the disks," says Rachowitz. "We won't know the full extent of the damage until the computers are cleaned and tested."

Determining the full extent of the damage with the insurance company is expected to take weeks.■

Next Edition: July 10th

Floor Show. *Rear Adm. John Wilson (second L) reviews a scale model of Building 3 with (others, L-R) Richard Retta, branch chief, NAVAIR Manufacturing Technology; Bldg. 3 Production Manager Dan Culleton; IMIP Director Paul Kanzler; and John Huber, deputy director-program manager.*

Taking Stock Of Modernization

Grumman showed off its latest manufacturing modernization projects to members of the Navy and the aerospace industry recently. They were here to review the Grumman/Navy Industrial Modernization Incentives Program (IMIP). The review marked the culmination of a five-year technology development and equipment modernization program at Grumman.

The company was the Navy's first contractor to receive IMIP funds. Grumman began the program in 1982 with an analysis of its manufacturing facilities and a proposal for modernization. Nineteen projects were earmarked for development.

The program focused on the technology enhancements and capital investments required for the modernization of Grumman's manufacturing centers to increase productivity and improve quality.

Grumman has made a $80 million capital investment commitment, while the Navy contributed $10 million worth of technology development funds. "The company has already invested half of the amount in new machines and technology," said Vincent DeStefano, vice president of Production Operations for Aircraft Systems. "We expect this program to produce savings of $275 million over the next 10 years."

During the industry review, Rear Admiral John Wilson Jr. said that IMIP not only results in lower weapons systems costs and improved contractor readiness, but also creates a framework for sharing new technologies with other companies. The admiral stressed communication between industry members and Grumman.

The modernization program is not limited to Bethpage Operations, says Paul Kanzler, director of IMIP at Grumman. Projects are also well underway at Calverton and Great River (L.I.); Glen Arm, Maryland; Stuart, Florida; and Milledgeville, Georgia.

Says Kanzler, "Teaming with the Navy has given Grumman a modern, efficient manufacturing capability that will enable us to be the premier supplier of naval weapons systems into the 21st century."

Simulation Provides Glimpse Of Next EA-6B's Electronics

Grummanites in Melville, Long Island, are getting an animated preview of the electronics countermeasures aboard the next EA-6B Prowler.

The preview consists of sophisticated graphics software running on a color computer. It provides a glimpse of how systems in the Advanced Capabilities (ADVCAP) Prowler will operate when the aircraft joins the fleet in 1992.

The package was developed by Grumman-CTEC in McLean, Virginia, as an engineering tool as well as a demonstration aide for a Navy review. Since it simulates in action how the ADVCAP's systems will operate, the engineers can better study, critique and possibly alter their designs.

In the EA-6B Prowler, powerful receivers pinpoint the location of a radar threat, on-board computers identify its frequency and transmitters jam it.

"The ADVCAP plane's receivers will be much better than those on the current Increased Capability-2 Prowler," says Tom Turner, group leader for Systems Design and Analysis, EA-6B ADVCAP. "The three operators on board will have a lot more information to understand before they determine what to jam and when to throw the switch. So the ADVCAP will also have a lot more computer power and many of the basic functions will be automated.

"The ADVCAP Prowler won't be flight tested until 1989," continues Turner. "But we have to make software design decisions now. This simulation helps us do that."

The simulation is operated using the color computer's "mouse," a wired remote control. As on the real aircraft, there is a geographic situation display that shows friendly and enemy aircraft and ships plus any radar threats.

The simulation can show listings of strike group routes and mission plans. In addition it can call up all sorts of target-management data, such as enemy search and weapon systems, emitters and jamming capability. A scenario generator can automatically set up any defense situation in any corner of the globe.

The EA-6B software specialists often run "exercises" in the western Pacific Ocean. "In reality, that's a tough place," says EA-6B systems engineer Paul Hunter. "We like to simulate the kinds of environments the fleet actually sees."

In addition to the display, the target-correlation and response management software systems were simulated to check their algorithms. These are the complex mathematical instructions that tell the plane's computer how to do its job. Checking algorithms by hand is a time-consuming matter; the computer program gets the job done in less than a half-hour. The simulation has also made software changes easier to evaluate.

"The plane's software systems all have underlying code," says Terri Runion, a Grumman-CTEC software engineer. "Before, the EA-6B people would have to do hours and hours of hand calculations to make sure a software change worked. With the simulation they can verify it in minutes."

Simulation software is no replacement for a systems integration test station, which consists of actual electronic hardware and can run much more complicated tests. The ADVCAP test station will be built later in the development cycle of the aircraft.

The Navy also is interested in using the EA-6B simulation software as a training tool. It could be set up up at a variety of sites and used for basic exercises. Doing so would make trainees more proficient when they arrive at the Whidbey Island, Washington, Naval Air Station, which has the one-of-a-kind EA-6B trainer.

"The Grumman simulation software is less sophisticated than the trainer," says Dan Yahiel, another Grumman-CTEC software engineer. "But it's also less expensive. The EA-6B trainer usually has a heavy workload. The software could help free up expensive resources — and that's good news for the Navy."■

Graphic Detail. *Systems engineers Jim Gallagher (front) and Paul Hunter call up the simulation of the Advanced Capabilities EA-6B's digital display indicator.*

Obituaries

Michael R. Capobianco of Power Plant, Stuart, Florida, Aircraft Systems Division, died April 30 at the age of 59. He had been with the company since 1972 and resided at 411 Ulrich Rd., Fort Pierce, Florida.

Daniel M. Dunaway of Machine Shop, Glen Arm, Maryland, Aircraft Systems Division, died May 11 at the age of 25. He had been with the company since 1981 and resided at 1915 Chipper Dr., Edgewood, Maryland.

Michael Falco of Systems Sciences, Bethpage, Aircraft Systems Division, died May 22 at the age of 51. He had been with the company since 1957 and resided at 495 Seamans Neck Rd., Seaford, N.Y.

Charles J. Lewandowski of Vehicle Drafting, Melville, Aircraft Systems Division, died May 26 at the age of 53. He had been with the company since 1959 and resided at 1 Adams St., Hicksville, N.Y.

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My family and I wish to extend our deepest thanks and appreciation to all my friends, co-workers and ESO for their kind expressions of sympathy and condolences during the recent loss of my wife. **Joe Milillo**

To all my friends in Great River. Your kind expressions of sympathy for my beloved mother, Margaret, are deeply appreciated and gratefully acknowledged. **Phil Mancuso**

To my friends and associates at Calverton. I was not able to see all of you before leaving for my re-assignment to Bethpage. I just wanted to let you know how much I enjoyed working with you during the past four years. I sincerely appreciate your help and encouragement. **Caroline Wright**

Improper Business Practices Can Tarnish Reputations And Lead To Prison Terms

Pick up any newspaper and you can easily find a story about someone being charged with unethical behavior. The problem is not limited to the defense industry. However, a 1986 public opinion survey found that American taxpayers believe industry fraud accounts for as much loss in defense dollars as waste does. In addition, they believe the industry places profits above all else. Who can blame them? Headlines about $600 toilet seats and overpriced hammers don't fade from memory overnight.

Public outcry led to the formation of a presidential Blue Ribbon Commission on Defense Management. Led by industrialist David Packard, the commission issued its final report last summer. It called upon the defense industry to police itself in its spending of billions of taxpayer dollars.

Grumman is one of 36 companies to sign the Defense Industry Initiatives on Business Ethics and Conduct. The agreement basically contains the procedures Grumman has always used to maintain its high ethical standards. "It also entails spending more time and money on training and discussing our code of ethics," says Grumman Corporation Vice President-Audit Howard Dunn.

Earlier this year, all Grummanites received a copy of the newly revised Grumman Code of Business Conduct. In the 14-page booklet are summaries of some of the laws that apply to company business activities and descriptions of procedures to maintain strict ethical discipline throughout Grumman. It also issues a strong warning: if you do not follow procedures, you not only tarnish your reputation and the company's — you could go to jail.

This is not an empty threat. If you accept kickbacks on government contracts, you get a $250,000 fine and 10 years in jail. Improper labor charging can also draw a stiff penalty. The government has a number of labor mischarging cases pending against various companies that could result in substantial fines and prison terms.

Every day, most Grummanites must fill out time cards that report the amount of time they work on each job. Grummanites and their supervisors must sign the cards stating that they have charged all work to the proper time charge. It's the employee's responsibility to make sure that the proper charge is reported. The company bases its contract price on the cost of material and labor. When labor charges are intentionally mischarged, the customers are not getting what they pay for. That is fraud.

"People know the difference between right and wrong," says Dunn. "Unfortunately, many of the procedures and laws can be downright confusing. It's every Grummanite's responsibility to find out the proper way to handle a situation."

Dunn is chairman of the Grumman Business Ethics Committee, an advisory panel for Grummanites to contact if they have questions or want to report unethical behavior.

"Normally, you should talk to your supervisor about any questions you might have," says Dunn. "However, if you have not gotten an answer you feel comfortable with, don't hesitate to call. Most of the calls I've received have dealt with sticky situations or gray areas."

For example, what if you suspect you've been told to charge some of your time to an incorrect job charge? What do you do?

"Obviously, this is a difficult situation for you. It's possible that you are wrong and your supervisor had checked out the correct charge," says Dunn. "However, say that the job you are working on is running over budget and you are given a job charge for an underbudget project. There is no excuse for mischarging labor. If you think that you've been asked to mischarge your time, discuss it with your supervisor. And if you are still uncomfortable, contact my office. You can discuss the problem with the committee without fear of retribution. We will help straighten it out."

When there is improper conduct, Grumman is firmly committed to swift and decisive action against the individual.

To stress the importance of proper business conduct, all new employees on their first day of work are told the company's Code of Ethics and their personal responsibility. "Discussing the code has also become an integral part of all supervisory training sessions conducted by the Corporate Training Department," says Joelyn Iannone, director of the department.

"In the spring of 1987, over 400 people took management courses which included at least one class totally dedicated to the code of ethics," says Iannone. During the training session, a videotape featuring case studies is discussed by participants.

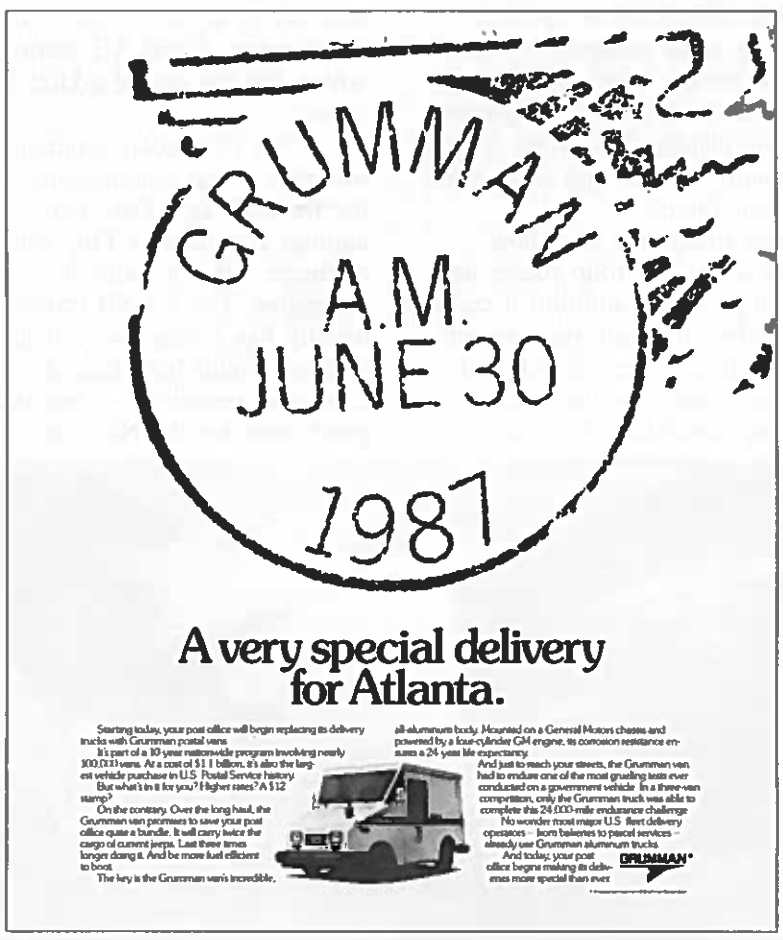
In the near future, a special segment of all personnel evaluation forms will be devoted to business ethics.

Certainly, this increased emphasis on proper business conduct was spurred by the Packard Commission, but it is not new to Grumman. "We have always taken pride in our good reputation. And these new measures will only strengthen our character," says Dunn. "It's not to say we've been immune to criticism. The uncovering of the overpriced ashtray was an embarrassment and we immediately took action to set things straight.

"But on the whole, proper business conduct is a vital part of our company culture," says Dunn. "When Grummanites see something wrong, they ask questions. They want a clear conscience. That is how Grumman has built its reputation."■

Questions?

If you have a question about business ethics or want to report unethical behavior, contact Grumman Business Ethics Committee Chairman Howard Dunn, (516) 575-3810, Ext. (111) 53810, mail stop A16-GHQ.


GRUMMAN
A.M.
JUNE 30
1987
A very special delivery for Atlanta.
Starting today, your post office will begin replacing its delivery trucks with Grumman postal vans.
It's part of a 10-year nationwide program involving nearly 100,000 vans. At a cost of $1.1 billion, it's also the largest vehicle purchase in U.S. Postal Service history.
But what's in it for you? Higher rates? A $12 stamp?
On the contrary. Over the long haul, the Grumman van promises to save your post office quite a bundle. It will carry twice the cargo of current jeeps. Last three times longer doing it. And be more fuel efficient to boot.
The key is the Grumman van's incredible, all-aluminum body. Mounted on a General Motors chassis and powered by a four-cylinder GM engine, its corrosion resistance ensures a 24-year life expectancy.
And just to reach your streets, the Grumman van had to endure one of the most grueling tests ever conducted on a government vehicle. In a three-van competition, only the Grumman truck was able to complete this 24,000-mile endurance challenge.
No wonder most major U.S. fleet delivery operators — from bakeries to parcel services — already use Grumman aluminum trucks.
And today, your post office begins making its deliveries more special than ever.
GRUMMAN

Special Delivery. *Grumman is publicizing the arrival of its Postal Service LLVs in 21 cities and towns with a special ad campaign. Grumman will run an ad 'personalized' for each of the locations the day after the trucks are officially introduced there. This ad will appear in the* Atlanta Constitution *and the* Atlanta Journal *on June 30.*

Is It Improper To Moonlight?

To help Grummanites understand those gray areas when it comes to proper business conduct, *Grumman World* will be running a series of examples in upcoming months. The following question was asked during a recent training session. It might apply to you.

Is it improper to work for a Grumman subcontractor?

No, it is not improper if you take a second job with a company supplier, if you have obtained the approval of your Grumman supervisor. However, you do run into problems if you work on Grumman jobs at your second job. That would be a conflict of interest.

If you have direct or indirect contact with the subcontractor during your Grumman job, then you are not permitted to work for that firm. For instance, a *Grumman World* writer couldn't work for the company that prints the paper. Such an arrangement might interfere later on when it comes time to renew the printing contract.

Your primary business responsibility is to Grumman and you are expected to avoid any activity that may interfere with your performance. So, if your second job makes you constantly tired the next morning at Grumman, that would be a conflict of interest.

When it comes to proper business practices, it's very important that you also look at what people perceive by your actions. Even though what you are doing is perfectly innocent, your reputation could be tarnished by what people think might not be on the up and up. If you have questions about your after-hours job, talk it over with your supervisor. If you still have questions, call Howard Dunn. (516) 575-3810, Ext. (111) 53810, mail stop A16-GHQ.

Quitting Cocaine: 'The Hardest Thing To Do Is To Reach Out And Ask For Help'

Larry (a pseudonym) is in his early 30s. He is soft-spoken and pensive: not someone you'd expect to have a drug problem. But he used to be a self-described "weekend warrior" — a recreational user of cocaine.

Larry, who works at Grumman in Bethpage, got help through the company's Employee Assistance Program (EAP). In the first of a series of interviews with rehabilitated employees, this is Larry's story.

"People think that if you're still doing your job, drugs aren't a problem," says Larry. "Where I used to work, I often saw people get really zonked at lunchtime. They still came back to do their job. Their co-workers figured since nobody was getting hurt, drugs weren't a problem for those people. They thought they had it under control."

Larry stopped using cocaine about two years ago. He generally limited his use to weekends, but like his former work associates, he sometimes used the drug at lunchtime, too.

Larry's experience belies the widespread assumption that occasional, recreational drug use is harmless. As time went on, he became more depressed — a rebound effect common among cocaine users. At one point, he even contemplated suicide.

Larry had finished high school when he first smoked marijuana. Later he entered the Army, and used pot infrequently. It was when he returned home to Brooklyn that drugs became a dominant factor in his life. The end of his Army career had coincided unhappily with the recession of the late '70s.

"I was unable to find a job," he recalls, "so I spent most of my time hanging around the streets. I was spending time with the wrong people, and I started using a lot of drugs. Drugs are a way of life in the streets."

Larry became addicted to heroin and quit "cold turkey" with the help of a friend. But he switched to cocaine.

"I began working steadily. I tried to save some money. But I continued to get high on the weekends. I started using cocaine in 1979, selling as well as using." At this point, Larry's drug use remained a secret from his family.

Shy by nature, drugs — even pot — made Larry paranoid and withdrawn. In 1980, when he was laid off from his job while living in California, he became a recluse. Instead of looking for work he spent his days smoking pot and snorting cocaine — until he was no longer eligible for unemployment compensation.

Though the habit cost him several hundred dollars a week, Larry would always locate the money. He usually worked at good-paying production jobs. To stretch his earnings, he would let bills slide or call up people who owed him money. On occasion he sold some of his belongings.

Larry never stole, contrary to the television portrayals of the junkies who hold up the convenience store. Larry contends that most abusers don't fit into this category, making drug abuse all the more insidious. When your associates don't see evidence of strange behavior, they won't have a clue that you have a problem and seriously need help.

"It just never got to the point where I had to steal," says Larry. "I would usually take cocaine on consignment: keeping some for me, and cutting the rest, which I then sold." (Editor's note: cutting involves combining the cocaine with confectioner's sugar or other powdery white substance to add volume and weight.)

When your associates don't see evidence of strange behavior, they won't have a clue that you have a problem and seriously need help.

The way cocaine gets out of control, Larry says, is "the more you do, the more you want to do. My mother and my wife would tell me I had a problem and needed help, but I wouldn't listen. I thought I could stop on my own."

About three years ago Larry began seeing a therapist on his own. He would quit for two or three months, but would then revert to his old ways. "It wasn't enough," he recalls. "There always was a Friday night where I would say, 'I'm just going to have a little bit.' That would lead to much more than a little bit. The depression the day after got worse every time.

"Finally, I went on a binge one Saturday night," he continues. "I used a lot of cocaine. Sunday morning I woke up and I was so disgusted with myself, I wanted to end my life. I knew I had to get help if I was to go on."

By this time, Larry was working at Grumman. He met after work with the Employee Assistance Program's Coordinator, Tom Conley. Upon Conley's advice, he checked into an in-patient treatment program at Brunswick Hospital, Amityville, Long Island.

The program consists of two parts: detoxification and rehabilitation. "Detox" involves ridding the body of the drug and is done under strict medical supervision: many drugs cannot be withdrawn abruptly without adversely affecting the person's health. The patient is given progressively smaller doses of substitute drugs. Over about a week, the person will be drug-free.

In the rehabilitation phase, the program's staff first must educate the patient about the drug to which he or she was addicted. There is extensive counseling, both one-on-one with a therapist and in groups. There are also reading and written assignments.

There is no permanent cure for drug addiction. Like a recovered alcoholic, Larry must be on guard for the rest of his life.

Larry's wife also became involved in counseling. She had faith in Larry's ability to quit, and he credits her with providing strong moral support throughout his rehabilitation and the days that followed.

The story didn't end with Larry's release from the hospital. There is no permanent cure for drug abuse; like a recovered alcoholic, Larry will have to be on guard for the rest of his life lest the habit return. This is the toughest part, because it means forsaking old friends.

Larry joined a Grumman-sponsored Alcoholics Anonymous chapter. Today, many of the people who sign up for A.A. have drug problems in addition to alcoholism. So, A.A. has tailored its program to address both problems. It has also formed a spinoff group called Narcotics Anonymous.

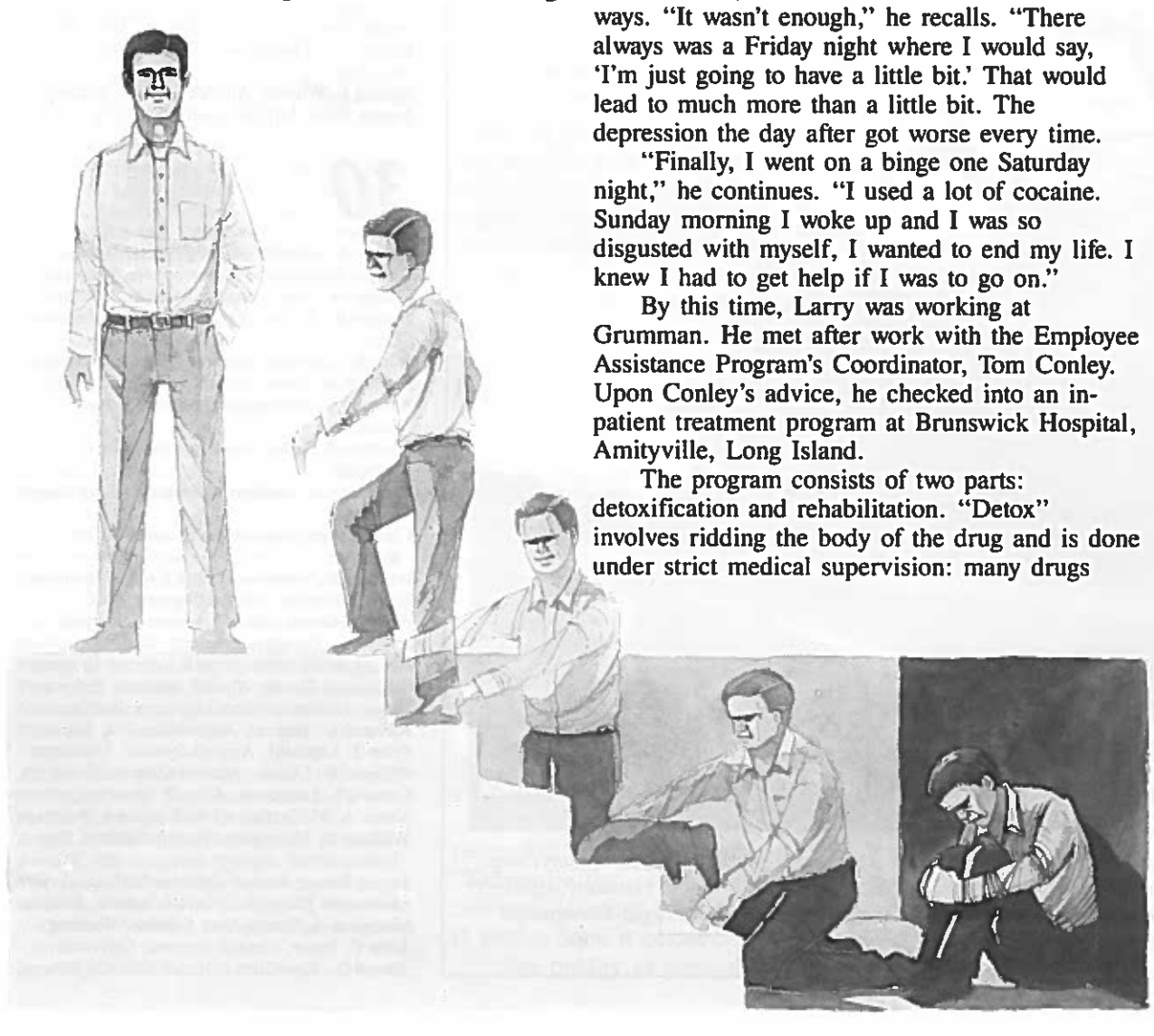
A.A. stresses moral support, and has chapters throughout the U.S. and in over 100 countries. Members receive a listing of chapters and meetings throughout their area, and are encouraged to attend meetings as often as needed. If they go on vacation, or move to another state, the group provides them with A.A. groups to contact at their destination. Larry estimates he attends a meeting four or five nights a week.

"One of the mottoes of A.A. and Nar-Anon is, try to live one day at a time," he says. "I have to keep telling myself, 'I may have used drugs yesterday, but I'm not worrying about that now. I won't be using them today.' It does get easier as you go along."

One unexpected source of support came from his boss and co-workers, who wrote to him in the hospital. "They were completely shocked when I went to Brunswick," he says. "I was putting up such a good front on the job, nobody knew how I really felt.

"The hardest thing for a person to do is to reach out and ask for help," he adds. "But you can lose a lot if you keep on using drugs. You don't have to look like a derelict to have a drug problem. It's important for people to realize that they can get help before they get like that."

In contrast to Larry, "Steve" is gregarious and talkative. In psychological terms, he was a polyaddict: a person who abuses alcohol and a variety of drugs. Now he's helping to counsel others. Steve's story will appear in an upcoming issue of Grumman World.■



The Grumman Employee Assistance Program may be reached at Ext. (111) 54357 or (516) 575-4357. There also is a toll-free national cocaine hotline: 1-800-COCAINE. Alcoholics Anonymous is nationwide; check the telephone directory service listings or white pages for the group nearest to you.

P. Auer

T. J. Bamrick

B. Bashkoff

E. A. Bumby

V. S. Calia

B. E. Carter

S. Cassino

D. J. Coppi

V. D'Angelo

J. K. Digilio

K. F. Dow

C. A. Dowd

R. E. Estes

S. L. Feinberg

N. W. Graves

J. L. Gries

H. J. Herzberger

W. S. Hettinger

R. F. Higgins

C. J. Hill

E. J. Holmes

W. G. Jung

W. A. Kaehler Jr.

R. T. Kinyon

L. C. Kubat

T. J. Lahey

J. Lamagna

E. J. Leyser Jr.

A. J. Licari

L. A. Luceri

J. E. Manning

Pretty Package. *This barge-load of A-6 Intruders set sail from Long Island on a week-long cruise to Florida, arriving at St. Augustine, Florida, on June 6. The planes join others now at Grumman St. Augustine for some standard depot level maintenance and the initial structural and other work needed to update them to A-6E TRAM (Target Recognition Attack Multisensor) configuration. (Photo by Tony Germano of NAVPRO in Bethpage)*

Service Milestones

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Gerald D. Fogel, Data Systems, Woodbury

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Harley B. Arnold, Aircraft Systems, Bethpage
John Caligiuri, Aircraft Systems, Bethpage
Joseph F. Clair, Aircraft Systems, Bethpage
Dominick Codoluto, Services, Bethpage
Ronald C. Cogliati, Aircraft Systems, Bethpage
Theodore R. Coleman, Aircraft Systems, Bethpage
Joseph Colletti, Aircraft Systems, Bethpage
Joseph A. Congero Jr., Electronics Systems, Great River
John P. D'Amato, Aircraft Systems, Bethpage
Robert A. Denzler, Aircraft Systems, Bethpage
Edward J. Donahue, Aircraft Systems, Bethpage
George Druhak, Aerostructures, Melville
Richard J. Edwards, Aircraft Systems, Los Angeles
Charles E. Eisele, Services, Bethpage
Maurice Fasano, Services, Bethpage
Henry W. Frenke, Data Systems, Bethpage
Horst J. Fuhrmann, Electronics Systems, Great River
Norbert C. Hansen, Aircraft Systems, Bethpage
Paul J. Kanzler, Aircraft Systems, Bethpage
Harold V. Kennedy Jr., Aircraft Systems, Bethpage
Robert S. Killian, Aircraft Systems, Pt. Mugu
Samuel M. Krameisen, Aircraft Systems, Bethpage
Francis Langdon, Aircraft Systems, Slidell (La.)
Charles Mullen, Aircraft Systems, Calverton
John H. Ohlmann, Grumman Corporation, Bethpage
Anthony Pettignano, Aircraft Systems, Calverton
Robert B. Powers, Aircraft Systems, Calverton
Robert V. Reinig, Aircraft Systems, Bethpage
Walter G. Richter, Aircraft Systems, Bethpage
Alden L. Rogers, Services, Los Angeles
Robert R. Roscigno, Electronics, Great River
Frank W. Rose, Aircraft Systems, Bethpage
William D. Steenson, Paumanock Development, Bethpage
Joseph Stissi, Electronics Systems, Great River
Richard G. Thompson, Aircraft Systems, Bethpage
Roland F. Witschi, Aircraft Systems, Bethpage
Joseph Wolf, Aircraft Systems, Melville

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Phillip A. Angelillo, Data Systems, Woodbury
Gabriel Bascianelli, Aerostructures, Melville
George W. Bilzi, Aircraft Systems, Bethpage
George R. Burton, Aircraft Systems, Virginia Beach
John R. Cartmell, Aircraft Systems, Bethpage
Richard A. Dare, Aircraft Systems, Bethpage
Anthony S. DeRuggiero, Aircraft Systems, Bethpage
Thomas P. Forbes III, Aircraft Systems, Bethpage
Catherine A. Gagliardi, Grumman Corporation, Bethpage
Christopher Gagomiros, Aircraft Systems, Bethpage
Herbert E. Gilcher, Aircraft Systems, Bethpage
John C. Goetke, Aircraft Systems, Stuart
Paul W. Grossi, Aircraft Systems, Bethpage
Robert L. Grossman, Aircraft Systems, Bethpage
George A. Hendry, Aircraft Systems, Bethpage
Stephen B. Honig, Aircraft Systems, Bethpage
Henry Janiesch, Aircraft Systems, Bethpage
Richard C. Jenkins, Aircraft Systems, Bethpage
Peter J. Lapinski, Aircraft Systems, Calverton
William R. Lonnie, Aircraft Systems, Calverton
Gerard T. Loughran, Aircraft Systems, Bethpage
Amza A. McCarthy, Aircraft Systems, Bethpage
William A. Morrissey, Aircraft Systems, Cubi Point
James Panos, Aircraft Systems, Bethpage
Emmanuel Pasyanos, Aircraft Systems, Bethpage
Margaret A. Penny, Data Systems, Woodbury
John C. Peper, Aircraft Systems, Calverton
Joseph A. Rietschlin, Aircraft Systems, Bethpage

C. F. Muller

P. J. McKeown

L. Z. Needle

A. E. Nelsen

J. Niggli

B. D. Odell

S. L. Pheffer

F. J. Quarto Jr.

M. F. Rastivo

K. A. Rathjen

E. J. Reilly

M. H. Ronning

R. Rosado

J. Sandoval

F. B. Schultz

M. Simonian

Marcello Romanelli, Space Systems, Bethpage
Erastus E. Rose, Aircraft Systems, Melville
Ronald C. Rossbach, Aircraft Systems, Melville
James Sambuco, Data Systems, Holtsville
Charles J. Savatteri, Aircraft Systems, Melville
Arthur Sholinsky, Electronics Systems, Bohemia
Harvey Sperling, Melbourne Systems, Melbourne
James J. Taffner, Aircraft Systems, Bethpage
Richard E. VanValkenburg, Aircraft Systems, Bethpage
Robert F. Woodwell, Aircraft Systems, Stuart
Stanley J. Yoniak Jr., Aircraft Systems, Bethpage

C. J. Staebler Jr.

P. Stylianos

A. V. Warren

W. O. Williams

W. A. Zalenski

D. W. Zielinski

25

Peter Auer, Aircraft Systems, Bethpage
Thomas J. Bamrick, Aircraft Systems, Calverton
Bernard Bashkoff, Aircraft Systems, Bethpage
Edward A. Bumby, Aircraft Systems, Bethpage
Joseph M. Caldwell, Aircraft Systems, Melville
Vincent S. Calia, Aircraft Systems, Bethpage
Belford E. Carter, Melbourne Systems, Melbourne
Salvatore Cassino, Aircraft Systems, Bethpage
David J. Coppi, Aerostructures, Melville
Vincent D'Angelo Jr., Aircraft Systems, Bethpage
Joan K. Digilio, Aircraft Systems, Calverton
Kenneth F. Dow, Aircraft Systems, Bethpage
Charles A. Dowd Jr., Melbourne Systems, Melville
Robert E. Estes, Aircraft Systems, Calverton
Stanley L. Feinberg, Aircraft Systems, Melville
Newell W. Graves, Aircraft Systems, Calverton
Joseph L. Gries, Aircraft Systems, Bethpage
Laurence M. Helner, Melbourne Systems, Melbourne
Harold J. Herzberger, Aircraft Systems, Calverton
William S. Hettinger, Grumman Corporation, Arlington
Robert F. Higgins, Aircraft Systems, Melville
Charles J. Hill, Aircraft Systems, Bethpage
Edward J. Holmes, Aircraft Systems, Bethpage
Walter G. Jung, Aircraft Systems, Melville
Walter A. Kaehler Jr., Aircraft Systems, Bethpage
Robert T. Kinyon, Aircraft Systems, Melville
Louis C. Kubat, Space Systems, Bethpage
Thomas J. Lahey, Aircraft Systems, Milledgeville
Jerome Lamagna, Aircraft Systems, Melville
Edward J. Leyser Jr., Data Systems, Woodbury
Andrew J. Licari, Aircraft Systems, Melville
Louis A. Luceri, Electronics Systems, Melville
John E. Manning, Data Systems, Woodbury
Michael F. Marinelli, Technical Services, Patuxent River
Patrick J. McKeown, Aerostructures, Melville
Charles F. Muller Jr., Melbourne Systems, Melbourne
Lester Z. Needle, Space Systems, Bethpage
Arthur E. Nelsen, Aircraft Systems, Bethpage
Joyce Niggli, Allied, Marathon
Richard E. Norklun, Aircraft Systems, Calverton
Barbara D. Odell, Aircraft Systems, Melville
Sheldon L. Pheffer, Aircraft Systems, Melville
Frank J. Quarto Jr., Electronics Systems, Melville
Matteo F. Rastivo, Space Systems, Bethpage
Kenneth A. Rathjen, Space Systems, Bethpage
Eugene J. Reilly, Data Systems, Bethpage
Martin H. Ronning, Aircraft Systems, Calverton
Enoch Rosado, Aircraft Systems, Bethpage
Joseph Sandoval, Aircraft Systems, Melville
George J. Schieferstein, Services, Calverton
Frances B. Schultz, Data Systems, Bethpage
Michael Simonian, Aircraft Systems, Bethpage
Christian J. Staebler Jr., Aircraft Systems, Bethpage
Angelo Stefantos, Aircraft Systems, Milledgeville
Philip Stylianos, Data Systems, Holtsville
Stanley Teich, Aircraft Systems, Melville
Joseph L. Vokral, Aircraft Systems, Bethpage
Anna V. Warren, Data Systems, Bethpage
Warren O. Williams, Space Systems, Bethpage
Leroy E. Wistuba, Aircraft Systems, Calverton
William A. Zalenski, Electronics Systems, Great River
Donald W. Zielinski, Aircraft Systems, Melville

Proud Parents. *At the Grumman Scholarship Luncheon, Grumman President John O'Brien (C) congratulated 1987 scholars and their parents (L to R) Naomi Botkin, Eli Botkin, Patricia Hartung, John Hartung, Anthony Antonucci Jr., Anthony Antonucci Sr., Peter Dutton Jr., Peter Dutton Sr., Colleen McCarty, Joseph McCarty, Alan Kuhn and Alfred Kuhn. (Photo by Marie Trimborn)*

Scholarship Winners Honored At Luncheon

"Get a broad, well-rounded education in physics and math. Don't try to become an expert in any specific area." This was the advice Vice President and Chief Engineer Norman Lewin gave this year's Grumman scholarship winners.

Lewin was the keynote speaker at the June 8 luncheon honoring the 1987 Grumman Science and Engineering Scholars. The luncheon was held at the Milleridge Cottage, Jericho, L.I. Also in attendance were the students' parents, principals and Grumman advisors. Grumman President John O'Brien presented the scholarships.

Lewin gave the Class of '87 a few pointers to guide them as they prepare for a career. Besides getting a broad education, he recommended that the students "learn how to think ... don't fall into the trap of letting the computer do the thinking for you."

He also offered a few tips to remember once they started work. "Recognize that every experience can be a learning opportunity, even if you've done it before."

The quality of work done was also stressed. "Your work reflects on you and your capacity for career growth ...so do your work in a manner and style of which you can be proud."

Grumman has awarded over 500 scholarships to Long Island high school students and Grumman dependents since the program began in 1944.

This year, 215 high school seniors applied for scholarships. Twelve received scholarships worth $6,000 a year for up to four years. Six of these scholarships went to the sons and daughters of Grummanites. All scholars have been offered summer employment at Grumman.

The Grumman dependents who won scholarships were:

Anthony Antonucci of John F. Kennedy High School in Plainview will attend Cornell University to study computer science.

Naomi Botkin of Huntington High School will attend Harvard University to study computer science.

Peter Dutton Jr. of Westhampton Beach High School will attend Princeton University to study mechanical engineering.

Patricia Hartung of Smithtown East High School, St. James, will attend Hofstra University in the fall to study physics.

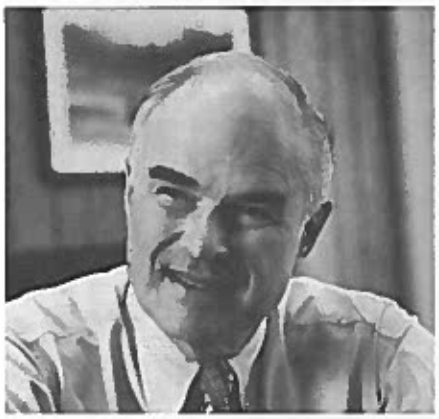
Alan Kuhn of Oyster Bay High School will attend Stanford University to study engineering.

Colleen McCarty of Rocky Point High School will be attend Pennsylvania University to study aerospace engineering.

The six scholarship winners in the open competition were:

Katherine Lee of New Hyde Park High School will attend Columbia University; Alexander Ogilvie of Stony Brook School, Carnegie-Mellon University; Kristan Rausch of Sewanhaka High School, Floral Park, the University of Virginia; Edward Rusowicz of St. Anthony's High School, South Huntington, Rensselaer Polytechnic Institute. All will study electrical engineering. John Titterton of Cold Spring Harbor High School will attend the University of Notre Dame to study civil engineering/electrical engineering. Jackie Weiner of Syosset High School will be attend Duke University to study mechanical engineering.■

A Letter From The Chairman



Even if you happened to know someone who was in the market for an airplane, you can't just go out and sell an F-14 or an E-2. Because so many of the things we make are for sale only to a very special market, it's easy to overlook the opportunities that we do have to sell Grumman products or services.

But we do have opportunities — plenty of them, probably — and I would like to suggest that if our 45,000 Grumman employees and retirees could come to see themselves as potential salespeople, we could see a real leap forward in results.

For example, many Grumman people have contact with other companies that buy electronic equipment. If they see a need that Grumman could fill — by building a piece of test equipment, perhaps — they could suggest that to them, and help to put the company in touch with the right people at Grumman.

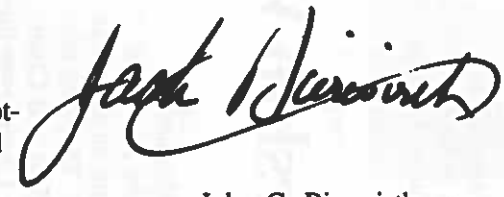
If you have friends who are looking for a new fishing boat, tell them what Grumman has to offer and help them locate a dealer. Or maybe the florist in your neighborhood or your brother-in-law's dry cleaning shop may want to buy a new delivery truck. Tell them why aluminum trucks last longer, and how Grumman trucks have delivered quality and reliability for over 40 years.

Those are a couple of the obvious ones. But we have another business within the Data Systems Division that is an excellent candidate for this sort of marketing: InfoConversion. Many Grumman people are unaware of this unit and the work that it does.

InfoConversion takes computer-generated information and transfers it to microfiche, which are small film cards, or to microfilm. This results in a 97 percent reduction in storage space over paper. A six-foot-high stack of paper can be reduced to a handful of cards. It can be especially useful for organizations that have to store large amounts of information and update it frequently — such as banks, insurance companies, utilities, and direct mail houses. The federal government is InfoConversion's biggest customer. However, there's plenty of room for school districts, small businesses, service companies, and a long list of potential users that Grummanites come into contact with all the time.

There will be more information in the next issue of *Grumman World* about InfoConversion and how you can help to promote it.

Developing this frame of mind — seeing ourselves as salespeople for Grumman in addition to our assigned responsibilities — can have a definite impact on Grumman's full performance. By learning more about our products and services, becoming knowledgeable enough to talk to others about them, we can sell people on Grumman and its abilities — and buy a brighter future for ourselves.



John C. Bierwirth
Chairman

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GrummanWorld
June 26, 1987

(Photo by Ken Johnson)

Check The Oil, Please

Who knows, "fly-by-oil" might become the next aeronautical buzz-word.

Unlike fly-by-wire, fluidic flight controls require no electrical system. The fluidic rate sensor's job is to detect sudden, uncharacteristic movements of the plane and emit small hydraulic oil pressure signals. If that happens, it would send flight correction commands at the speed of sound through the oil — about 4,000 feet per second — to the flight control surfaces.

In the Engineering Development Center in Bethpage, engineer Ann Tucker is working on a rate sensor mounted on a flight attitude table. The rate sensor is part of some concepts Grumman is studying in fluid dynamics.

Inside the sensor, little squares or laminates of sheet metal, about the size of a Saltine cracker, are the heart of a hydraulic equivalent of the computerized fly-by-wire control systems such as the one on the X-29.

Each square has different shaped cutouts. By stacking the different squares in specific ways the engineers create fluid devices, such as amplifiers and the rate sensor. These amplifiers modify the pressure of hydraulic fluid running from a pilot's control stick to the actuators that move flight control surfaces.

This system might be able to keep an unstable plane such as the X-29 from going out of control if the electrical system should fail and knock out the computer controls.